

FIS9-2001-0156
IB3-0009

REMARKS

Claims 1-4 and 6-19 are pending in the present Application. Claims 1 and 17 have been amended and Claim 20 has been added, leaving Claims 1-4 and 6-20 for consideration upon entry of the present Amendment. No new matter has been introduced by way of amendment. For example, support for newly added Claim 20 can be found at least in Claims 1-2 as originally filed.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 102(e)

Claims 1-4, 6-10, and 12-19 stand rejected under 35 U.S.C. § 102(e), as allegedly anticipated by U.S. Patent No. 6,348,725 to Cheung et al. (hereinafter "Cheung"). Applicants respectfully traverse this rejection.

Cheung is generally directed to a method for chemical vapor deposition (CVD) of a low dielectric constant film of a silicon oxide on a substrate by reaction of an organosilicon compound and an oxidizing gas.

To anticipate a claim under 35 U.S.C. § 102, a single source must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

The rejection of independent Claims 1 and 17 has been rendered moot in view of the amendments thereto. Specifically, there is no disclosure in Cheung of at least carbon monoxide or a combination comprising carbon monoxide as the oxygen-providing gas. The Examiner's attention is directed to Cheung, column 6, lines 9-14, which has been reproduced for convenience as shown below, wherein the oxygen-providing gases are disclosed.

The organo silicon compounds are oxidized during deposition by reaction with oxygen (O₂) or oxygen containing compounds such as nitrous oxide (N₂O), ozone (O₃), carbon dioxide (CO₂), and water (H₂O), preferably N₂O, such that the carbon

FIS9-2001-0156
IB3-0009

content of the deposited film is from 1 to 50 % by atomic weight, preferably about 5 to 30%.

Since carbon monoxide and combinations comprising carbon monoxide have not been disclosed, Cheung fails to disclose each and every element of Applicants' claims.

Accordingly, Applicants respectfully request the rejection to Claims 1-4, 6-10, and 12-19 be withdrawn.

First Claim Rejection Under 35 U.S.C. § 103(a)

Claims 1-4 and 6-19 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 6, 147, 009 to Grill et al. (hereinafter "Grill") in view of Cheung. Applicants respectfully traverse this rejection.

Grill is generally directed to the use of hydrogenated oxidized silica carbon films for use as dielectric materials.

Cheung is discussed above.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Applicants assert that a *prima facie* case of obviousness has not been established because the cited references, individually or in combination, fail to teach or suggest all elements of independent Claims 1 and 17. Notably absent from Grill is any disclosure or suggestion of an oxygen-providing gas other than oxygen. As such, Grill fails to disclose other oxygen-providing

UIS9-2001-0156
IB3-0009

gases such as carbon monoxide and combinations comprising carbon monoxide as claimed by Applicants.

Cheung fails to compensate for the deficiencies of Grill. As discussed in the Claim Rejections Under 35 U.S.C. § 102(e) above, Cheung does not disclose or suggest the feature “wherein the oxygen-providing gas is selected from the group consisting of carbon monoxide and a combination comprising carbon monoxide”.

Accordingly, Applicants respectfully request the rejection to Claims 1-4 and 6-19 be withdrawn.

Second Claim Rejection Under 35 U.S.C. § 103(a)

Claims 1-4 and 7-19 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 6, 159, 871 to Loboda et al. (hereinafter “Loboda”) in view of Cheung. Applicants respectfully traverse this rejection.

Loboda is generally directed to hydrogenated silicon oxycarbide films. The films are produced from a reactive gas mixture comprising a methyl containing silane and an oxygen-providing gas. Suitable oxygen containing gases include air, ozone, oxygen, nitrous oxide and nitric oxide. As described by Loboda, the oxygen-providing gas is preferably nitrous oxide (see Loboda, Col. 3, ll. 1-3). A recited advantage of using nitrous oxide as the oxygen-providing gas is that the film composition and properties remain essentially the same even when the amount of nitrous oxide in the reactive gas mixture is significantly varied.

Cheung is discussed above.

Similar to Grill, Loboda also fails to disclose or even suggest the use of carbon monoxide or combinations comprising carbon monoxide as the oxygen-providing gas. Furthermore, Loboda teaches away from the feature “wherein the precursor gas and the oxygen-providing gas are substantially free from nitrogen” by disclosing, in each one of Examples 1-9, nitrous oxide as the oxygen-providing gas used to form the hydrogenated silicon oxycarbide film. Therefore, Loboda fails to disclose or suggest all elements of Applicants’ independent Claims 1 and 17.

FIS9-2001-0156

IB3-0009

Once again, Cheung fails to compensate for the deficiencies of the primary reference. As discussed in the Claim Rejections Under 35 U.S.C. § 102(e) above, Cheung fails disclose or suggest the feature "wherein the oxygen-providing gas is selected from the group consisting of carbon monoxide and a combination comprising carbon monoxide". As such, the Office Action has not established a *prima facie* case of obviousness.

Accordingly, Applicants respectfully request the rejection to Claims 1-4 and 7-19 be withdrawn.

Third Claim Rejection Under 35 U.S.C. § 103(a)

Claim 6 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Loboda in view of Cheung as applied to Claim 1 in the Second Claim Rejection Under 35 U.S.C. § 103(a) above, and further in view of U.S. Patent No. 5,028,566 to Lagendijk (hereinafter "Lagendijk"). Applicants respectfully traverse this rejection.

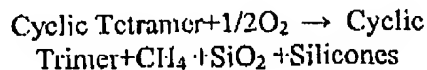
Loboda and Cheung are discussed above.

Lagendijk is generally directed to deposition of silicon dioxide films by oxidative decomposition of organosiloxanes at low temperature.

Applicants assert that a *prima facie* case of obviousness has not been established against Applicants' independent Claim 1, from which Claim 6 is dependent thereon and, as such, includes all features found in the base claim. As discussed in the Second Claim Rejection Under 35 U.S.C. § 103(a) above, Loboda and Cheung, individually or in combination, do not disclose or suggest all elements of the base claim. Moreover, Loboda teaches away from carbon monoxide and combinations comprising carbon monoxide as discussed above. Lagendijk does not compensate for the deficiencies of Loboda and Cheung discussed above because there is no disclosure or suggestion of carbon monoxide or combinations comprising carbon monoxide as the oxygen-providing gas. The only gas discussed in Lagendijk is oxygen. The Examiner's attention is directed to column 4, lines 10-15, which is reproduced for convenience as shown below.

FIS9-2001-0156
1133-0009

In general the likely decomposition reaction of these compounds be according to the following generalized formula



Furthermore, Applicants submit that there is no motivation to combine Lagendijk with Loboda and/or Cheung as Lagendijk is directed to the production of silicon dioxide, which is markedly different from hydrogenated oxidized silicon carbon films.

For at least these reasons, Claim 6 is patentably distinct over the cited references. Accordingly, Applicants respectfully request the rejection be withdrawn.

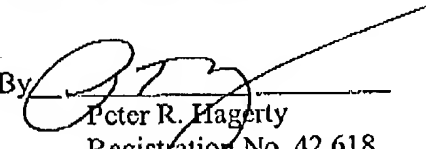
It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 09-0458.

Respectfully submitted,

CANTOR COLBURN LLP

By


Peter R. Hagerty
Registration No. 42,618

Date: August 03, 2004
Telephone (860) 286-2929
Facsimile (860) 286-0115
Customer No.: 23413